

Claim Amendments

1-3. (canceled)

4. (currently amended) The wireless communication system as recited in claim ~~3-6~~, wherein the adaptive rate transmitter retransmits the at least one of the RLC blocks in a transmission unit which may be different than the transmission unit in which the at least one of the RLC blocks was initially transmitted.

5. (currently amended) The wireless communication system as recited in claim ~~36~~, wherein the adaptive rate transmitter retransmits only a portion of a transmission unit including the at least one RLC block.

6. (currently amended) ~~The wireless communication system as recited in claim 5A~~
wireless communication system being capable of supporting link adaptation comprising:

a transmitter for forming fixed length radio link control (RLC) blocks, for forming fixed length coded sub-blocks from the RLC blocks, for configuring the coded sub-blocks into transmission units being capable of supporting link adaptation at multiple code rates, for forming a downlink segment from the transmission units, for interleaving the downlink segment into an interleaved downlink segment, and for transmitting the interleaved downlink segment, wherein the transmitter comprises an adaptive rate transmitter for retransmitting at least one of the RLC blocks at a code rate which may be different from the code rate used for an initial transmission of the at least one of the RLC blocks, wherein the adaptive rate transmitter retransmits the portion of a transmission unit comprises a an integer number of the coded sub-blocks; and

a receiver for receiving the downlink segment, for obtaining the transmission units from the downlink segment, and for decoding the RLC blocks from the transmission units.

7. (currently amended) The wireless communication system as recited in claim ~~5~~6, wherein the adaptive rate transmitter retransmits a transmission unit comprised of coded sub-blocks which have not been transmitted previously.

8-9. (canceled)

10. (currently amended) The wireless communications systems as recited in claim ~~4~~6, wherein the transmitter adds cyclic redundancy check sequences to the RLC blocks to form error coded RLC blocks which are configured into the coded sub-blocks.

11. (currently amended) The wireless communications system as recited in claim ~~4-6~~, wherein the ~~transmitter comprises:~~
~~an adaptive rate transmitter for forming~~ forms the coded sub-blocks by dividing the RLC blocks by a variable value.

12. (currently amended) ~~The wireless communications system as recited in claim 9-A~~
wireless communication system being capable of supporting link adaptation comprising:
a transmitter for forming fixed length radio link control (RLC) blocks, for forming fixed length coded sub-blocks from the RLC blocks, for configuring the coded sub-blocks into transmission units being capable of supporting link adaptation at multiple code rates, for forming a downlink segment from the transmission units, for interleaving the downlink segment into an interleaved downlink segment, and for transmitting the interleaved downlink segment, wherein the transmitter comprises an adaptive rate transmitter for forming the coded sub-blocks by dividing the RLC blocks by a variable value, wherein the variable value is one of 6, 12 and 18.

13-14. (canceled)

15. (currently amended) The method as recited in claim ~~14-18~~, wherein the step of performing comprises the step of performing convolutional coding uses a convolutional code rate of 1/3.

16. (currently amended) The method as recited in claim 14-18, wherein the step of configuring comprises the step of interleaving the encoded RLC blocks.

17. (canceled)

18. (currently amended) ~~The method as recited in claim 17~~ A method for communicating in a wireless communication system being capable of supporting link adaptation at multiple code rates, the method comprising the steps of:

forming fixed length radio link control (RLC) blocks;

configuring the RLC blocks into transmission units being capable of supporting link adaptation at multiple code rates, wherein the step of configuring comprises the steps of:

adding cyclic redundancy check (CRC) sequences to the RLC blocks;

performing convolutional coding on the RLC blocks and the CRC sequences to generate encoded RLC blocks;

segmenting the encoded RLC blocks into G coded sub-blocks, wherein groups of the coded sub-blocks are assembled to form the transmission units.

forming a downlink segment from the transmission units, wherein G is equal to approximately one of 6, 12 and 18;

interleaving the downlink segment into an interleaved downlink segment; and
transmitting the interleaved downlink segment.

19. (currently amended) The method as recited in claim 17-18, wherein the step of transmitting comprises the step of transmitting the interleaved downlink segment over GSM bursts.

20. (currently amended) The method as recited in claim ~~17-18~~, wherein the step of configuring comprises the step of forming the transmission units using different numbers of the coded sub-blocks to obtain multiple code rates for the link adaptation.

21. (currently amended) The method as recited in claim ~~17-18~~, wherein the step of configuring comprises the step of using different transmission units for an initial transmission and for a retransmission of the RLC blocks.

22. (currently amended) The method as recited in claim ~~17-18~~, wherein the step of configuring comprises the step of using only a portion of one of the transmission units for a retransmission of the RLC blocks.

23. (currently amended) ~~The method as recited in claim 22~~ A method for communicating in a wireless communication system being capable of supporting link adaptation at multiple code rates, the method comprising the steps of:

forming fixed length radio link control (RLC) blocks;

configuring the RLC blocks into transmission units being capable of supporting link adaptation at multiple code rates, 13 wherein the step of configuring comprises the steps of:

adding cyclic redundancy check (CRC) sequences to the RLC blocks;

performing convolutional coding on the RLC blocks and the CRC sequences to generate encoded RLC blocks;

segmenting the encoded RLC blocks into G coded sub-blocks, wherein groups of the coded sub-blocks are assembled to form the transmission units;

using only a portion of one of the transmission units for a retransmission of the RLC blocks, wherein the step of using only a portion comprises the step of using an integer number of the coded sub-blocks to form the portion of the one of the transmission units used for the retransmission of the RLC blocks;

forming a downlink segment from the transmission units;

interleaving the downlink segment into an interleaved downlink segment; and

transmitting the interleaved downlink segment.

24. (original) The method as recited in claim 23 wherein the step of using an integer number comprises the step of using coded sub-blocks which have not been transmitted earlier.

25. (currently amended) The method as recited in claim ~~13-18~~ wherein the step of forming a downlink segment comprises the steps of:

forming a header indicative of the transmission units to be transmitted; and

forming a downlink segment from the transmission units and the header.

26. (original) The method as recited in claim 25 wherein the header is transmitted along with the transmission units.

27. (original) The method as recited in claim 25 wherein the step of forming a header comprises the step of providing, in the header, at least one coded sub-block sequence number associated with at least one of the coded sub-blocks in the transmission units to be transmitted.

28. (original) The method as recited in claim 25 wherein the step of forming a header comprises the step of providing in the header a code rate field indicative of the size and number of transmission units to be transmitted.

29. (original) The method as recited in claim 28 wherein the step of forming a header comprises the step of providing in the header a temporary flow identifier indicative of which receiver should receive the transmission units or which transmitter has sent the transmission units.

30. (currently amended) The method as recited in claim ~~17-18~~, wherein the step of configuring comprises the step of forming at least two of the transmission units of an unequal number of coded sub-blocks.

31. (currently amended) The method as recited in claim ~~17-18~~, wherein the step of transmitting comprises the step of transmitting the interleaved downlink segment over a general packet radio services system.

32. (canceled)

33. (currently amended) The method as recited in claim ~~32-42~~, wherein the step of processing the error coded RLC blocks comprises the steps of:

performing a convolutional coding on the error coded RLC blocks to generate encoded RLC blocks; and

forming the coded sub-blocks from the encoded RLC blocks.

34. (original) The method as recited in claim 33 wherein the step of performing comprises the step of performing the convolutional coding with a 1/3 code rate.

35. (original) The method as recited in claim 33 wherein the step of forming the coded sub-blocks comprises the step of interleaving the encoded RLC blocks.

36. (original) The method as recited in claim 35 wherein the step of forming the coded sub-blocks comprises the step of

segmenting the interleaved encoded RLC blocks into G coded sub-blocks and,
wherein groups of the coded sub-blocks are assembled to form the transmission units.

37. (previously amended) The method as recited in claim 36 wherein the step of transmitting comprises the step of transmitting the interleaved downlink segment over GSM bursts.

38. (original) The method as recited in claim 36 wherein at least two of the transmission units have a different number of coded sub-blocks.

39. (original) The method as recited in claim 38 wherein the transmission units are modulated using phase shift keying.

40. (original) The method as recited in claim 38 wherein the transmission units are modulated using gaussian minimum shift keying.

41. (canceled)

42. (currently amended) ~~The method as recited in claim 41~~ A method for communicating in a wireless communication system being capable of supporting link adaptation between multiple code rates and incremental redundancy, the method comprising the steps of:

forming fixed length radio link control (RLC) blocks;

combining the RLC blocks with a cyclic redundancy check sequence for error detection to form error coded RLC blocks;

processing the error coded RLC blocks to form coded sub-blocks;

assembling groups of the coded sub-blocks into transmission units based on the multiple code rates;

forming a header indicative of the transmission units;

¹⁾ forming a downlink segment from the transmission units and the header;

²⁾ interleaving the downlink segment into an interleaved downlink segment;

transmitting the interleaved downlink segment to a receiver; and

retransmitting at least one of the RLC blocks at a code rate which may be different from the code rate used for an initial transmission of the at least one of the RLC blocks, wherein the step of retransmitting comprises the step of:

dropping one of the coded sub-blocks when retransmitting the transmission units.

43. (original) The method as recited in claim 42 wherein the step of retransmitting comprises the step of:

replacing the dropped one of the coded sub-blocks with extended header information in the retransmitted transmission units.

44. (original) The method as recited in claim 43 wherein the step of replacing comprises the step of:

providing a coded sub-block sequence number in the extended header information.